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SECURITY INFORMATION

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CENTRAL INTELLIGENCE AGENCY

INTELLIGENCE MEMORANDUM NO. 361
(CIA/RR IM-361)

CORK PRODUCTION AND TRADE WITH PARTICULAR EMPHASIS ON THE SOVIET BLOC

26 November 1951

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CIA/RR Project 56-51 S-E-C-R-E-T

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This report has not been coordinated with the intelligence organizations of the Departments of State, the Army, the Navy, and the Air Force. It contains information available to CIA as of 1 November 1951.

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CORK PRODUCTION AND TRADE WITH PARTICULAR EMPHASIS ON THE SOVIET BLOC 1/

Summary

Cork is produced in commercial quantities in very limited areas of the world. Because of its unique qualities, cork has a large number of specialized industrial uses and is a strategic commodity in time of war. World production and exports of cork in 1951 are at the highest levels in history as a result of the heavy demand from all sources. The Soviet Bloc 2/ is dependent upon imports to meet its cork requirements, since long-term efforts to produce an appreciable amount of cork in the USSR thus far have been unsuccessful. The increased imports into the Soviet Bloc during 1950 reflect a growing need for cork and possibly for stockpiling.

1. Introduction.

Cork, which is obtained from the bark of the cork oak, is a strategic commodity in time of war because of its many military and nonmilitary uses for which satisfactory substitutes in some instances may be either limited or not available. Such characteristics of cork as its natural compressibility, resilience, lightness, insulating value, resistance to moisture and liquid penetration, and frictional quality account for the large number of its specialized uses.

In terms of end use, cork usually is divided into two grades, corkwood and grinding cork. Corkwood, the highest grade, is used mainly in stoppers, discs, squares, life preservers, and floats. Grinding cork, the lower grade, is used in cork composition products (such as beverage crowns, gaskets, oil immersion friction drives, friction clutches, carburetor floats, shoe fillers, grinding and polishing wheels, washers, seals, grease retainers, and textile cots), in corkboard for insulating and acoustical purposes, and in linoleum. There are no completely satisfactory substitutes for the principal industrial cork products, particularly gaskets, oil immersion friction drives, friction

1. A basic report on cork entitled Cork Requirements and Supplies, dated June 1951, which deals largely with supplies, consumption, and uses of cork in the US, has been published by the Forest Products Committee of the Munitions Board.
2. The Soviet Bloc as herein referred to includes the USSR, Albania, Bulgaria, Czechoslovakia, Hungary, Poland, Rumania, and East Germany.

clutches, carburetor floats, washers, grease retainers, textile cots, grinding and polishing wheels, and certain types of insulation.

The climatic conditions necessary for the growth of the cork oak restrict commercial production to relatively small areas in southern Europe, notably in Portugal, Spain, France, and Italy and in North Africa. Relatively insignificant quantities (less than one-half of 1 percent of the world total) are produced in the eastern Mediterranean basin, the US, the USSR, Japan, China, Korea, and Manchuria. In time of war the problem of obtaining adequate supplies of cork, as in the case of such critical materials as industrial diamonds, becomes increasingly important in the nonproducing countries.

2. World Production and Trade.

Approximately 34 percent of the world's cork-producing area is located in Portugal; 24 percent in Spain, France, and Italy; and the remaining 42 percent in North Africa. Approximately half of the North African cork-producing area is in Algeria, one-third in French Morocco, and the remaining one-sixth in Tunisia and Spanish Morocco. (The area of cork oak forest in the principal producing countries is given in Table 1.)

The total annual world harvest of cork bark normally averages about 300,000 metric tons, with Portugal, the largest producer, accounting for about 50 percent; North Africa, 20 percent; and Spain, France, and Italy, the remaining 30 percent. 1/ Portugal also accounts for over one-half of the total world exportable supply. (A summary of the average production and exports of cork of the major producing countries during the prewar, war, and postwar periods is given in Table 2.)

As a result of the strong world demand for cork, caused to some extent by fear of another world war, production and exports in the calendar year 1950 reached record levels of about 353,000 metric tons produced and 348,000 tons exported. These tonnages represent increases of 11 and 29 percent, respectively, over the 1945-49 averages.

1. As indicated by a comparison of the production figures and the producing area percentages, there is wide variation in the amount of cork produced on a given acreage, depending on locality. In Portugal, yields are relatively high; in North Africa, very low.

In all of the major producing countries, plans were being made to increase production to the maximum in 1951 in order to meet the greatly increased demand. Purchase contracts were being let in many countries before the bark was stripped from the trees. This large demand for cork has caused a sharp reduction in the normal yearly carry-over stocks, which, along with the premature stripping of green bark 1/ in some areas, may result in a shortage of high-quality cork within the next few years.

The US, the UK, West Germany, and the USSR were the four leading importers of cork in 1950. The US normally imports over 40 percent of the world's cork export, and the UK, West Germany, and the USSR import about 25 percent. (A summary of the average imports of cork and cork products by these four countries during the prewar, war, and postwar periods is given in Table 3.) West Germany and the USSR showed the largest increases in imports in 1950. West Germany's imports increased by 152 percent and those of the USSR by 153 percent over the respective previous 5-year averages.

3. Soviet Bloc Imports.

The USSR maintains its own cork manufacturing industry, normally importing raw cork directly from the producing countries. Only about 1 percent of that country's known imports are manufactured cork products.

In the Soviet Bloc the USSR has long been the foremost user of corkwood, and Portugal has been the chief supplier of this grade of cork. Soviet imports of grinding cork originate principally in Algeria and French Morocco, which are second and third in order of importance to the Soviets as cork suppliers.

The European Satellite countries import all of their cork requirements, including a considerable amount of cork products. Czechoslovakia is the major Satellite importer, and Portugal and North Africa are the principal exporters to the Satellites. Relatively small quantities of cork are exported from Spain to the Satellite countries.

1. High-quality bark requires from 8 to 10 years of growth. Any earlier stripping results in an inferior bark with limited uses.

Payment for cork imports by the USSR usually is made in dollars. Since World War II, attempts have been made by the Soviets to arrange for barter transactions, but in most cases these have failed to materialize. With respect to the Satellites, transactions usually are made on a barter basis and through regular trade agreements, occasionally in exchange for high-priority commodities such as wheat, chemicals, and industrial goods. The principal firms shipping cork from Portugal to the USSR and the European Satellites are Wicander, Ltda., shipping to Poland and East Germany through Bremen; E. Brito and Irmao, shipping to Czechoslovakia; and J. Barreira and Irmao, shipping to Odessa and Libau.

Total cork imports into the USSR in 1950 represented an increase of 153 percent over the 1945-49 average. (A summary of cork imports 1/ into the Soviet Bloc from the major producing countries for the prewar, war, and postwar periods is given in Table 4.) Total Soviet Bloc imports in 1950 represented an increase of 124 percent over the 1945-49 average. These figures take into consideration only those imports received directly from the producing countries. There is some evidence that the USSR and the Satellites are augmenting their supplies of cork by transshipments through other European countries, particularly West Germany. The substantial increase in raw cork exports to West Germany in 1950 may be an indication of this (see Table 3). The large increase in cork imports in 1950 probably results from increased industrial activity in the Soviet Bloc, particularly in the shipbuilding, stopper, and linoleum industries. The possibility that some of this cork is being stockpiled, however, cannot be overlooked.

Soviet Bloc requirements for cork cannot be ascertained, because of the many and varied industrial uses of cork as well as the possible utilization of substitutes.

The extent to which the Soviet Bloc has been successful in finding cork substitutes is not known. Attempts by the Soviets in 1948 to substitute cardboard for cork composition gaskets, washers, and seal retainers proved unsuccessful because of the inability of cardboard to withstand the permeating action of oil.

1. The statistics presented on the Soviet Bloc represent a summary of all available material.

The outlook in the Soviet Bloc for 1951, based on statistics through June 1951 on imports from a few producing countries, gives every indication of a continued high rate of cork purchasing which may surpass the high 1950 level. The fact that in many instances the USSR is bidding on the best grades of cork, with apparent disregard of price, supports this assumption.

4. Experimental Cork Production in the USSR.

The USSR has been experimenting for over a century with the culture of the cork oak in the Crimea and Southern Caucasus regions in an attempt to attain self-sufficiency in cork production. First plantings of the cork oak were made in the Crimea in 1819, in Sukhumi and Gagry in 1890, and in Kutaisi in 1898. At about the turn of the century a plan was developed which visualized the planting of 10,000 hectares 1/ of cork oak trees by 1929. By 1930, although plantings had spread to Adzharia, Abkhazia, West Georgia, and Azerbaydzhan, cork oaks were being grown on a total of only 900 hectares. In 1929, additional plans were formulated for the systematic planting of 2,500 hectares each year at a density of about 200 to 250 seedlings to the hectare so that at the end of 30 years a total of 75,000 hectares would be attained, an area which the Soviets thought sufficient to supply all of their domestic cork requirements. The plantings were to be made in 13 regions of the USSR, principally in the Crimea and around the Black and Caspian seacoasts of the Caucasus. (A tabular summary, listing the principal regions, dates, areas of plantings, problems encountered, and prospects for future developments, is given in Table 5.)

Young cork oaks are highly susceptible to damage from many causes, and the Soviet producing regions are not well-suited to the needs of this plant. As a result, hundreds of hectares of trees have been destroyed throughout the years by frost, winds, soil conditions, mice, maggots, crickets, wild and domestic animals, and various diseases. By 1937, cork trees were being grown on only about 925 hectares in the USSR, and many of the trees were in very poor condition. The USSR invested 2 million rubles in 1937 in making additional plantings and conducting further experimental studies. By 1949, however, cork oak plantings had dwindled to about 830 hectares, with a density varying from 34 to 100 trees per hectare.

1. One hectare equals 2.47 acres.

Thus, after more than a century of efforts to produce cork on a commercial scale in regions around the Black and Caspian seas, relatively little progress has been made by the Soviets toward overcoming unfavorable environmental factors. Even if experimental work on cork oak production is continued and intensified, it seems unlikely that the USSR can produce significant quantities of cork within the next few decades and hence will have to continue to depend on imports for the major source of supply.

APPENDIX

TABLES

Table 1

Area of Cork Oak Forests
in the Principal Producing Countries 1/

Country	Area (Hectares) a/	Percentage of Total
Portugal	696,084	34
Spain	251,723	12
France b/	141,645	7
Italy c/	99,961	5
Algeria	445,170	22
French Morocco	299,883	15
Tunisia	95,104	4
Spanish Morocco	29,948	1
Total	2,059,518	100

a. One hectare equals 2.47 acres.
b. Including Corsica.
c. Including Sardinia and Sicily.

Footnotes indicating sources for tables will be found on pp. 12, 13.

Table 2

Production and Exports of Cork
by the Principal Producing Countries 2/
1935-50

Metric Tons

Country	Annual Average 1935-39		Annual Average 1940-44		Annual Average 1945-49		1950	
	Production	Exports a/	Production	Exports a/	Production	Exports a/	Production	Exports a/
Portugal	163,750 b/	155,072	141,317 b/	132,414	184,000 c/ 3/	164,075 3/	195,000 3/	209,970 4/
Spain	57,533 d/ 5/	39,027 e/	42,430 5/	35,183 6/	57,840 5/	43,961 6/	74,400 7/	45,748 8/
Algeria	42,355 c/	43,901	22,300 9/	19,842	33,173 10/	36,756 11/	33,000 12/	48,500 13/
French Morocco	16,900 d/	18,134	24,092 e/ 14/	5,427	16,868 c/ 14/	13,700 c/ 15/	20,000 16/	25,500 13/
France	10,630	4,904	9,000 b/	1,763	10,060 17/	1,413 1/	11,000 17/	2,693 b/
Italy	10,353	5,324	14,943 e/	4,298 c/	11,000 17/	6,258 c/ 1/	12,000 b/	9,746 18/
Tunisia	6,414 19/	5,128	4,076 19/	888 f/	3,165 19/	3,948 19/	4,435 19/	5,176 13/
Spanish Morocco	2,151 d/	445 c/	1,573 c/	276 c/	2,000	424 e/ 20/	2,942 21/	382 b/
Total	310,086	271,935	259,731	200,091	318,106	270,535	352,777	347,715

a. The excess of exports over production in several cases reflects reductions in carry-over stocks in exporting countries. Note that this situation is particularly common in 1950.
b. Estimated.
c. Four-year average.
d. Three-year average.
e. Two-year average.
f. One year.

Table 3

Total Imports of Cork into Selected Countries
from the Principal Producing Countries
1935-50

Metric Tons

Importing Country	Annual Average 1935-39	Annual Average 1940-44	Annual Average 1945-49	1950
US	97,923 a/	99,325 22/	125,083 22/	127,751 23/
UK	37,924 a/	30,890 2/	41,639 a/ 24/	41,839 23/
West Germany	42,723 a/	10,410 2/	13,214 b/ 25/	33,244 23/
USSR	6,477 2/	1,372 2/	4,632 26/	11,698 27/
Total	185,047	141,997	184,568	214,532

a. Four-year average.
b. One year.

Table 4

Soviet Bloc Imports of Cork
from the Principal Producing Countries
1935-50

Metric Tons

Producing Country	Annual Average 1935-39		Annual Average 1940-44		Annual Average 1945-49		1950	
	USSR	European Satellites	USSR	European Satellites	USSR	European Satellites	USSR	European Satellites
Portugal	4,326 2/	2,009 2/	1,142 2/	240 30/	3,032 28/	930 30/	8,972 29/	3,959 31/
Spain	441 a/	0	0	991 6/	0	510 6/	0	396 32/
Algeria	1,710 b/	0	230 2/	0	600 a/ 12/	2,086 c/ 33/	2,726 12/	1,066 34/
French Morocco	0	0	0	0	0	92 14/	0	98 37/
France	0	0	0	0	0	0	0	0
Italy	0	371 b/	0	1,188 d/	1,000 a/ 35/	141 a/ 18/	0	269 18/
Tunisia	0	0	0	0	0	0	0	0
Spanish Morocco	0	0	0	0	0	0	0	0
Other	0	3,752 36/	0	0	0	0	0	1,307 38/
Subtotal	6,477	6,132	1,372	2,419	4,632	3,759	11,698	7,095
Total, Soviet Bloc	12,609		3,791		8,391		18,793	

a. One year.
b. Three-year average.
c. Two-year average.
d. Four-year average.

Table 5

Results of Experimental Studies on the Culture of Cork Oaks in the USSR before 1949 39/

Regions of Plantings	First Plantings	Limiting Factors Observed	Hectares a/ 1949	Prospects for Further Development (Soviet Appraisal)
Sochi	N.A.	Poor sowing methods	Negligible	Fully possible
Khosta	1930	Original losses due to improper care and wood beetles	61	Fully possible
Gagry	1890	Serious losses from frost, poor soil, rocky slopes, and harmful weeds	Negligible	Possible under more favorable soil conditions
Sukhumi Abkhazia	1890	Surface water conditions	Negligible	Fully possible
Ochemchiri	1930	Poor soil, frost, and domestic animals	120	Impossible because of poor soil
Zugdidi	1930	Poor soil, frost, and domestic animals	422	Possible
Kutaisi	1898	Poor sowing methods	227	Possible
Azerbaydzhan Lenkoran	1930	Damage from frost, winds, drought, maggots, and wild boars	Negligible	Negative results obtained
Yulamin	N.A.	Frost, topography, and sowing methods	Negligible	Negative results obtained
Krasnaya Polyana	N.A.	Frost conditions	Negligible	More frost-resistant varieties required
Tuapse	1929	Frost and wind conditions	Negligible	More frost-resistant varieties required
Turkmen SSR	1928	Frost and wind conditions	Negligible	Negative results obtained
Crimea	1819	Frost and wind conditions	Negligible	Fully possible
		Total Hectares, 1949 (Primary Plantations Only)	830	

a. One hectare equals 2.47 acres.

FOOTNOTES FOR TABLES

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3. Jornal do Comercio, Lisbon, 8 Oct 1950.
4. State, Lisbon No. 21, 9 Jul 1951.
5. [redacted] 25X1A2g
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8. [redacted]
9. State, Algiers No. 105, 24 Nov 1948.
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11. State, Algiers No. 105, 24 Nov 1948; State Report, Cork, Algiers, 1 Aug 1949.
12. State, Algiers No. 203, 2 Feb 1951.
13. Bulletin Mensuel de Statistique d' Outre-Mer, Mar-Apr 1951.
14. State, Tangier No. 55, 1 Feb 1950; State, Tangier No. 194, 27 Oct 1950.
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16. [redacted] 25X1A2g
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18. Statistica del Commercio con l' Estero, Nov 1950.
19. State, Tunis No. 406, 26 Apr 1951.
20. State, Tangier No. 55, 1 Feb 1950.
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22. Department of Commerce Imports Reports Nos. 430,000 and 431,000.
23. State, Portugal No. 21, 9 Jul 1951; State, Algiers No. 203, 2 Feb 1951; State, Casablanca No. 3, 5 Jul 1951; [redacted] 25X1A2g Statistica del Commercio con l' Estero, Nov.1950.
24. Cork Production and International Cork Trade, International Institute of Agriculture, FAO, Rome, 1947; Boletim Mensal de Estatistica, Dec 1948, Dec 1949, Sep 1950; State, Seville No. 56, 17 May 1950; State, Algiers No. 166, 27 Apr 1950; State, Casablanca No. 3, 5 Jul 1951; Statistica del Commercio con l' Estero, Nov 1950.

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25X1A2g [redacted] State, Lisbon No. 333, 25 Nov 1949.

27. [redacted] State, Algiers No. 203, 2 Feb 1951.

25X1A2g 28. [redacted]

29. [redacted]

30. [redacted]; Department of Commerce "flimsy" on Cork.

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32. [redacted]

33. State, Algiers No. 105, 24 Nov 1948; State, Algiers No. 203, 2 Feb 1951.

34. Ibid; State, Algiers No. 58, 30 Aug 1950.

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37. State, Casablanca No. 3, 5 Jul 1951.

38. State, Trieste No. 271, Transshipment, 1 Mar 1951.

39. Probkovyy Dub i Yego Razvedeniye v SSSR (Cork Oak and Its Cultivation in the USSR), L.F. Pravdin, Moscow Academy of Sciences, 1949.